

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING

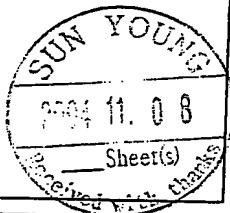
PCT

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

To:
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Date of mailing
(day/month/year) 03 NOVEMBER 2004 (03.11.2004)

Applicant's or agent's file reference
OGHP03116

IMPORTANT NOTIFICATION

International application No.

PCT/KR2003/001444

International filing date (day/month/year)

21 JULY 2003 (21.07.2003)

Priority date (day/months/year)

23 JULY 2002 (23.07.2002)

Applicant

LG INNOTEK CO., LTD et al

1. The applicant is hereby notified that International Preliminary Examining Authority transmits here with the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**
The applicant must enter the national phase before each elected office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details in the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/KR



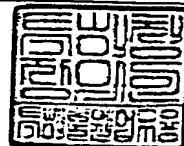
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COMMISSIONER

Telephone No. 82-42-481-5207



PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference OGHP03116	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/KR2003/001444	International filing date (day/month/year) 21 JULY 2003 (21.07.2003)	Priority date (day/month/year) 23 JULY 2002 (23.07.2002)
International Patent Classification (IPC) or national classification and IPC IPC7 H02K 7/075		
Applicant LG INNOTEK CO., LTD et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 19 NOVEMBER 2003 (19.11.2003)	Date of completion of this report 01 NOVEMBER 2004 (01.11.2004)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer JEON, Yong Hai Telephone No. 82-42-481-5657 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/001444

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1 - 11, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under Article 19
 pages _____, filed with the demand
 pages 12 - 15, filed with the letter of 21/09/2004
- ☒ the drawings:
 pages 1/5 - 5/5, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/001444

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 - 19	YES
	Claims	None	NO
Inventive step (IS)	Claims	12 - 17	YES
	Claims	1 - 11, 18, 19	NO
Industrial applicability (IA)	Claims	1 - 19	YES
	Claims	None	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: JP 2000092804 A

D2: JP 2002028570 A

1. Novelty

Claims 1-19 comply with the requirement of novelty as set forth in PCT Article 33(2).

2. Inventive Step

Claims 12-17 comply with the requirement of inventive step as set forth in PCT Article 33(3). Claims 1-11, 18 and 19 do not comply with the requirement of inventive step as set forth in PCT Article 33(3). The reasons are as follows: D1 discloses a flat coreless vibrating motor comprising: an eccentric rotor which is formed by integrally molding a synthetic resin with an armature coil on one side; a shaft which is passed through the center of the rotor; magnets which are arranged in part of the housing and supply magnetic fluxes; brushes which are arranged inside the magnets at the portion of the housing; a commutator which is arranged so that the front ends of the brushes may slide on the commutator; and an auxiliary weight composed of a high-density synthetic resin having a specific gravity of greater than 7. D2 discloses a flat type vibration motor comprising: a weight on a round shaped upper substrate; a lower case; an upper case which covers an upper portion of the lower case; a shaft which connects the center of the lower case with the center of the upper case and supports them; a lower substrate attached to one portion on an upper side of the lower case; a magnet attached to the lower substrate and the upper side of the lower case; a round shaped thin upper substrate rotatably supported in the shaft; and a commutator provided with a plurality of segments on the circumference of the center of the shaft at the bottom of the upper substrate. Neither D1 nor D2 discloses a rotor made of insert injection molding in which the coil is placed. However, since it is a part of general knowledge of the art in the field, the skilled person in the technical field of the present invention would arrive at the subject matters of claims 1-11, 18 and 19 without the exercise of inventive skill by simply combining the subject matters disclosed in D1 and D2. Consequently, the subject matters of claims 1-11, 18 and 19 do not possess an inventive step.

3. Industrial Application

Claims 1-19 conform to the regulations in PCT Article 33(4) and possess industrial applicability.

Claims:

1. A flat vibration motor comprising:
an upper case;
5 a lower case;
a conductive substrate formed on an upper surface of
the lower case;
a magnet formed on the upper surface of the lower case,
for generating magnetic field;
10 a conductive brush having an end electrically connected
with the substrate;
a rotational shaft supported at an approximate center
portion between the lower case and the upper case;
a rotator inserted onto the rotational shaft to rotate
15 and formed of a resin base;
a commutator formed on a lower surface of the rotator
and connected to the other end of the brush; and
a coil having an upper end, which is positioned lower
than an upper end of the rotator;
20 wherein the rotator is made of insert injection molding in
which the coil is placed.
2. The flat vibration motor of claim 1, wherein the
coil is fixed to the base by an insert injection molding.
25
3. The flat vibration motor of claim 1, further
comprising a weight formed eccentrically inside the rotator,
for enhancing eccentricity of weight center of the rotator.
- 30 4. The flat vibration motor of claim 1, wherein the
coil is fixed by the base.

5. The flat vibration motor of claim 1, wherein the coil is received inside the base so that the coil is firmly fixed when heated.

5 6. The flat vibration motor of claim 1, wherein the coil is received inside the base so that the coil is not observed at an upper surface of the rotator.

10 7. A flat vibration motor, comprising:
a case;
a rotational shaft standing at a center portion of the case;
a rotator formed upon a circumference of the rotational shaft and made of resin;
15 a coil recessed into the rotator so that the coil is firmly fixed when heated; and
a power supply means for supplying a predetermined electric power to the coil.

20 8. The flat vibration motor of claim 7, wherein the coil is formed on the base by insert injection molding.

25 9. The flat vibration motor of claim 7, further comprising:
a weight formed eccentrically inside of the rotator, for enhancing eccentricity of weight center of the rotator.

30 10. The flat vibration motor of claim 7, wherein the coil has an upper portion formed at a position lower than an upper portion of the rotator so that the coil is firmly fixed when heated.

11. The flat vibration motor of claim 7, wherein the power supply means comprises:

a substrate formed on a surface of the case; and
a brush having both ends connected to the substrate and
the rotator.

5 12. The flat vibration motor of claim 7, wherein the
power supply means comprises:

a lower insulating fixer formed on a surface of the
case;

10 a conductive terminal formed a lower surface of the
lower fixer; and

a brush penetrating the lower fixer and having both
ends connected to the terminal and the rotator.

15 13. A flat vibration motor, comprising:

an upper case having an open lower side;

20 a lower insulating fixer formed on the lower side of
the upper case;

a magnet formed on an inner bottom surface of the upper
case, for generating magnetic field;

25 a rotational shaft standing at a center portion of the
upper case and the lower fixer;

a rotator inserted onto the rotational shaft and formed
of base made of resin, for rotating;

30 a conductive terminal formed a lower side of the lower
fixer;

a brush penetrating the lower fixer and having an end
connected to the terminal and the other end connected to a
commutator formed on a lower side of the rotator; and

a coil having an upper portion formed at a position
lower than an upper portion of the rotator.

14. The flat vibration motor of claim 13, wherein the
coil is formed on the base by insert injection molding.

15. The flat vibration motor of claim 13, further comprising:

a weight formed eccentrically inside of the rotator, for enhancing eccentricity of weight center of the rotator.

5

16. The flat vibration motor of claim 13, wherein the coil is received inside the base so that the coil is firmly fixed when heated.

10

17. The flat vibration motor of claim 13, wherein the coil is received inside the base so that the coil is not observed at an upper surface of the rotator.

18. A flat vibration motor, comprising:

15

a case;

a rotational shaft standing inside the case;

a rotator placed upon a circumference of the rotational shaft;

20

a coil received in the rotator so that the coil is not exposed to exterior; and

a commutator and a brush for supplying a predetermined electric power to the coil;

wherein the rotator is made of insert injection molding in which the coil is placed.

25

19. The flat vibration motor of claim 18, wherein the coil is formed on the base made of resin by insert injection molding.